

REQUEST FOR RECONSIDERATION

The present invention relates to a process for the recovery of a catalyst in a reaction comprising boron trifluoride or its complex as the catalyst at high efficiency and to reuse it for the reaction. Reconsideration of the claimed invention is requested in view of the following remarks.

The present inventors have found, *inter alia*, a solvent system which dissolves boron trifluoride or its complex and does not dissolve an olefin with relatively high molecular weight, and found that recycling of a catalyst system was possible in a condensation reaction of the olefin. (Present specification at page 4, lines 23-26).

In particular, the present inventors found that, by using a hydrofluorocarbon compound as a solvent, the amount of the catalyst carried into the product system was reduced and that the amount of a by-product was also decreased. (Present specification at page 5, lines 4-6). Moreover, the present inventors found that the reaction product and the catalyst were easily separable by using the hydrofluorocarbon compound as an extracting solvent. (Present specification at page 4, lines 6-8). Such features of the present invention are not described or suggested by the cited references of record.

Accordingly, the rejection of claims 1-23 under 35 U.S.C. § 103(a) over Darden et al. (US Patent No. 4,400,565) and Mozeleski et al. (U.S. Patent No. 7,005,537) is respectfully traversed.

Darden et al. generally describes a co-catalyst for use with boron trifluoride in olefin oligomerization. However, there is no description or suggestion whatsoever a *reaction solvent* that consists of a hydrofluorocarbon compound and/or an oxygenic hydrofluorocarbon compound.

It is noted that the Examiner asserts that a perfluorosulfonic acid resin is used in the oligomerization reactions described in Darden et al. (See present Office Action at page 5,

lines 8-11). However, the reference recites that the resin is used as the *co-catalyst*, and not as a reaction solvent. Moreover, it is noted that there is no indication or evidentiary support for the use of any resin, much less a perfluorosulfonic acid resin, as a solvent for a reaction.

Moreover, Applicants point out that there is no indication or suggestion whatsoever of the *recovery* of the claimed catalyst. The reference merely mentions at column 14, lines 58-61, as pointed out by the Examiner, that “the co-catalyst may be separated from the mixture, advantages not found when BF_3 is only employed.” (Emphasis added). Regarding recycling, the reference only indicates that recycling is advantageous when BF_3 is combined with the resin, which teaches away from the recycling process recited in the claimed invention. (See column 14, lines 61-64).

Regarding Mozeleski et al., the reference does not cure the deficiencies of Darden et al., since the reference does not describe or suggest a *reaction solvent* that consists of a hydrofluorocarbon compound and/or an oxygenic hydrofluorocarbon compound.

It is noted that the Examiner asserts that Example 9 of the reference (at column 26) recites, *inter alia*, the use of a fluorocarbon solvent. (See present Office Action at page 5, lines 17-18). However, Applicants point out that the example recites a solvent mixture that includes a “chlorinated solvent”, which is clearly not inclusive of the reaction solvents of the claimed invention. Further, there is no recitation or exemplification of in the reference of the specific use of only a hydrofluorocarbon compound and/or an oxygenic hydrofluorocarbon compound as a reaction solvent.

Therefore, the claimed invention is novel and unobvious over the cited references.

Accordingly, withdrawal of the rejection is requested.

The objections to claims 2-4 are obviated by amendment, as shown above.

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The rejections of claims 11 and 22-23 under 35 U.S.C. § 112, second paragraph, and under 35 U.S.C. § 101 are obviated by amendment. As shown above, all of the claims recite process steps.

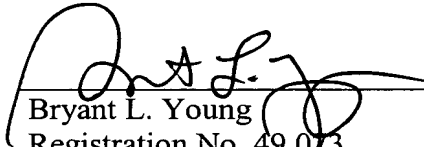
Accordingly, withdrawal of the rejections is requested.

Applicants submit that the application is now in condition for allowance. Early notification of such allowance is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon


Bryant L. Young
Registration No. 49,073

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)